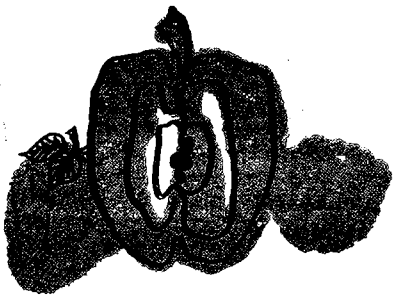
AGRICULTURAL EXTENSION SERVICE UNIVERSITY OF MINNESOTA

FRUIT GROWERS' LETTER



By Leonard B. Hertz, Extension Horticulturist November 1970

SPUR-TYPE STRAINS OF McINTOSH

With continued emphasis on high density apple plantings, spur-type strains are proving desirable where semi-standard to standard rootstocks are used. The spur strains of McIntosh, although relatively new, may have an advantage over other spur strains, such as Red Delicious, because of their greater area of adaptation in Minnesota.

All of the newly discovered strains of McIntosh have the typical compact growth and early bearing habits of spur-type apples. They do not send out heavy sucker growth from trunk and limbs after pruning; therefore, size can be controlled by pruning alone. They typically have more leaves per spur, tend to be stunted in growth, and they have a strong tendency for annual bearing.

Minnesota growers planting McIntosh should consider carefully the apparent advantages of spur types as opposed to regular strains of this variety.

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HIGH DENSITY PLANTINGS

During a recent trip to the "Red Delicious country" of British Columbia, Washington, and Oregon, your author noted that high density apple plantings were everywhere. Why this type of culture? The table on the next page helps us understand why this system has become so widely used.

Several conclusions are evident from the information presented, which although originating in another area, can still be used as a guide for future development in Minnesota. These are:

1. The McIntosh apple, often called "an Eastern apple," is the highest yielding variety in this study. It surpasses even the Red Delicious by nearly 700 bushels per acre.

2. The semi-drawfing rootstock, MM 106, has had a definite influence on apple production (yield) of the scion variety. McIntosh and Spartan appear to be well suited to MM 106.

3. The data clearly show that increased tree density means higher yields of quality fruit.

Effect of rootstock and planting distance on cumulative yield of four apple varieties, 1957-69, Summerland, British Columbia

Rootstock	Accumulated yield per acre in 40 lb. bushels				
	McIntosh	Spartan	Golden Delicious	Red Delicious	Average all varieties
Semi-dwarf		Planted 15 X 15 feet (194 trees/acre)			
MM 106	7932	7467	4241	6460	6340
EM VII	5206	5612	4770	4494	4882
MM 104	5995	4488	4757	4170	4852
Semi-standard		Planted 212 X 212 feet (97 trees/acre)			
EM II	2986	2798	2788	2841	2702
MM III	2118	2385	2397	2013	2282
Standard		Planted 30 X 30 feet (48 trees/acre)			
Antonovka	1975	1824	1682	1175	1609
Average all varieties	3846	3376	2936	3064	3192

4. Even the low density plantings (48 trees/acre) surpass the average bushel yield of apples in Minnesota. Although several factors influence this yield, certainly optimum water (irrigation) and sunlight are critical.

5. The Spartan variety, although relatively new, appears to have been accepted, not only because of its ability to produce a high yield of fruit, but also because of its high quality.

In summary, significant increases in yield of marketable fruit were realized by increasing the number of trees per acre. At this point, however, it is not known if high tree densities are economically practical in Minnesota.

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SHIPPING DORMANT STRAWBERRY PLANTS

Dormant strawberry plants can be held in good condition for several months if proper storage techniques are used. However, plants shipped in excellent condition often arrive hardly worth planting.

Recent studies have shown that if transit temperatures do not exceed 60° F., the plants can sustain trips of up to 3 days. They should not be exposed for more than 1 day to transit temperatures of 70° to 75° F., and shipment at higher temperatures is not recommended.

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WISCONSIN-MINNESOTA FRUIT GROWERS MEET AT MADISON, JANUARY 13-14

The joint annual convention of the Wisconsin Apple and Horticultural Council and the Minnesota Fruit Growers Association will be held January 13 and 14 at the Holiday Inn No. 2 in Madison, Wisconsin. The afternoon of January 12 will be open to set up exhibits. (From The Great Lakes Fruit Growers News)

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MINNESOTA AND U.S. APPLE PRODUCTION

Commercial apple production in Minnesota is estimated at 25 million pounds, (approximately 600,000 bushels). This yield is up 31 percent from 1969 and up 12 percent from 1968.

Production in the United States, totaled approximately six billion pounds, (about 143 million bushels). This production is down slightly from 1969, but significantly higher than 1968.

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COST OF PRODUCING APPLES

At a recent symposium on "The Production and Utilization of the Golden Delicious Apple," sponsored by Pennsylvania State University, a detailed outline of the cost of producing apples was presented. Although the "costs per acre" in Pennsylvania will differ from those of Minnesota, similarities in many instances are obvious.

The figures in the table are based on the average cost of producing apples per acre on 18 orchards with an average size of 120 acres and an average yield of 325 bushels per acre.

Take time to compare your orchard costs with those from Pennsylvania. Can you produce a bushel of apples for less than $1.33, or are your costs significantly higher? Have you forgotten to include interest on operating capital and machinery? What about family labor? (From Virginia Fruit)

Cost of Producing Apples--1969

Item	Cost per acre	Your orchard*
Orchard protection	$ 5.00	$
Fertilizer and lime	9.50	
Planting and replanting	3.00	
Bees--pollination	1.00	
Spray materials	67.50	
License	.75	
Insurance	8.26	

*How does your orchard compare?

Item	Cost per acre	Your orchard*
Fuel	$ 9.42	$
Depreciation	23.00	
Repairs, machinery, and buildings	22.95	
Land	24.00	
Taxes	4.16	
Interest on machinery investment	8.35	
Interest paid operating capital	8.90	
Labor, family	36.35	
Labor, hired	92.15	
Miscellaneous costs	10.00	
Total production costs	$334.29	
Picking	97.50	
Hauling, hired	1.25	
Total harvesting costs	$ 98.75	
Total costs per acre	$433.04	
Cost per bushel harvested	1.33	

*How does your orchard compare?

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TIME TO CHECK ORCHARDS FOR MOUSE ACTIVITY

WHEN PICKING COMPLETED

The time to check orchards for mouse activity is just as soon as picking is completed.

Some tips on successful baiting follow:

Bait when the grass is dry and before the grass is matted, and at least 3 days before heavy rains or snows are forecast.

Use only "freshly" prepared zinc phosphide baits. Do not use left over bait.

When broadcasting baits or using ground sprays, treat around the perimeter of the orchard.

Under some circumstances a second late fall baiting is necessary. Effectiveness of early baiting will be reduced by rain or snow, and mice migrating into the orchards may not be controlled. Orchards should be checked at intervals for any renewed activity.

Picking up drops before baiting improves control.

Baits are POISONS so READ THE LABEL and follow recommended precautions. (From Great Lakes Fruit Grower News)

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NEWS BRIEFS

FROM

HORTICULTURE DEPARTMENT

Results of Strawberry Variety Trial at the Horticulture Research Center are listed below.

Strawberry Variety Trial at Horticulture Research Center[1]

Variety or selection	Yield 1969 qts/acre[2]	Yield 1970 qts/acre	Average size 1969 gms/berry[3]
Earlidawn	5,654	3,375	8.3
Earlimore	15,596	9,692	7.7
Dunlap	11,775	7,623	7.8
Sunrise	7,066	7,296	7.1
Cyclone	14,100	7,079	8.8
Midland	8,346	3,594	10.0
Redcoat	16,851	11,108	9.0
Surecrop	10,952	4,900	8.8
Ulrich Imperial	11,984	9,148	8.3
Minn. 1844	8,593	8,494	8.4
Minn. 2028	16,238	8,821	7.4
Catskill	20,416	8,276	9.6
Midway	15,529	7,623	8.5
Sparkle	14,335	9,932	8.6
Trumpeter	12,137	6,316	8.4
Minn. 1858	11,963	8,821	8.4
Minn. 1868	14,865	9,257	9.6
Minn. 1873	20,175	9,921	7.5
Minn. 2012	8,851	6,523	6.3
Minn. 2193	7,756	5,685	6.4
Badgerbelle	19,368	10,912	11.1
Jerseybelle	15,262	6,578	15.4
Vesper	9,513	6,338	12.2

[1] Excelsior, Minnesota
[2] Yield--1.2 lbs. per quart
[3] Average size for the season determined from 25 berries per pick

The results can be summarized as follows:

1. In almost all cases, the yield of fruit was significantly less in 1970 than in 1969.
2. Several varieties produced 50 percent less fruit in 1970 than in 1969.
3. Quality of fruit was good to excellent in both 1970 and 1969.

COMING EVENTS

Michigan State Horticultural Society at Grand Rapids, Michigan

December 1-3, 1970

Agricultural Pesticide Short Course at the Leamington Hotel, Minneapolis

December 15-17, 1970

Minnesota Fruit Growers Association and
Wisconsin Apple and Horticultural Council Annual Meeting, Madison, Wisconsin

January 13-14, 1971

Dwarf Fruit Tree Association at Benton Harbor, Michigan

March 8-9, 1971

New Horticultural Department building dedication

March 22-24, 1971

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